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U.S. House of Representatives
Committee on Government Reform
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Mr. Chairman and Committee Members:

Thank you for inviting me to participate in this important hearing examining steroid use among young females. I am a professor of Health and Exercise Science at The College of New Jersey. In addition, I am a Fellow of the American College of Sports Medicine and I currently serve on the Board of Directors of the National Strength and Conditioning Association. At the local level, I served on the Massachusetts Governor's Committee on Physical Fitness and Sports. As a pediatric exercise scientist and practitioner in the area of youth fitness, I have years of experience working with children and adolescents. I have authored over 100 publications and four books on youth health and fitness.

Female Steroid use in the United States

Although anabolic steroids have traditionally been associated with adult strength and power athletes, in the United States the use of anabolic steroids has extended to younger populations. While the use of anabolic steroids is generally high in males than females, the CDC reports that approximately 1 million adolescents have used or are currently using anabolic steroids (2). Researchers have recently suggested that anabolic steroid use may begin before students enter high school. It has been reported that 1.5% to 2.8% of middle school females reported using anabolic steroids (6, 10). The latest report suggests that up to 7% of middle school females admit to trying anabolic steroids at least once in order to enhance athletic performance or improve their appearance.

While it appears that a growing number of young females in the United States are using anabolic steroids for non-medical reasons, the possibility of under-reporting and over-reporting should be considered when evaluating these reports. For example, it is possible that some children and adolescents may have confused anabolic steroids with similar medications (e.g. corticosteroids). When we administered our survey to middle school students in Massachusetts, nine respondents answered positively when questioned about anabolic steroid use (6). However, they noted on the questionnaire that steroids were in their 'asthma medication.' Although these responses were excluded from the final analysis, it is possible that other students may have unintentionally reported anabolic steroid use. On the other hand, it is possible that students may have underreported anabolic steroid use for fear of punishment or disqualification. In my opinion, some young females are using anabolic steroids. However, I believe the most recent findings overestimate the use of anabolic steroids by middle school females.

Health Risks and Consequences

The perceived benefits of anabolic steroids are not without serious and potentially life threatening consequences. The use of anabolic steroids has been associated with hypertension, alterations in lipid profiles, clotting disorders, liver dysfunction, reproductive

abnormalities, and psychological effects including uncontrolled aggression. Anabolic steroid users who share contaminated needles also increase the risk of transmitting disease. The use of anabolic steroids by children and adolescents poses additional concerns because the use of these drugs during this developmental period may result in premature closure of the growth plates that may result in stunted growth.

Factors Promoting Anabolic Steroid Use by Young Females

It is reasonable to conclude that increased pressure on young females to excel in sports as well as concerns some females have about their physical appearance may result in a perceived need for chemical interventions to enhance performance or alter body size favorably. At a time when the number of overweight children and adolescents in the United States continues to increase, it seems that some female middle school and high school athletes and *non-athletes* may be tempted to use anabolic steroids because they believe these drugs will help them reduce body fat and improve their physical appearance. The CDC reports that 59% of adolescent females are trying to lose weight (2).

While anabolic steroids can, in fact, favorably alter body composition and enhance strength and power performance, users must participate regularly in a vigorous strength and conditioning program in order to achieve the desired results. Without the stimulus of strength exercise, anabolic steroids will not be ergogenic. Yet anabolic steroid users who do not perform strength exercise will experience the androgenic consequences of steroid use which include facial hair, deepening of the voice, male pattern baldness and severe acne. In my judgment, most young females will find the masculinizing effects of anabolic steroids to be socially unacceptable.

Education

Findings suggest that children and adolescents are knowledgeable about the potential physiological effects of anabolic steroids (e.g., increase muscle size and strength) as well as the potential influence of these drugs on physical appearance (6, 8, 9). However, their knowledge of the potential harmful effects of anabolic steroids seems incomplete. These findings suggest that proactive interventions are needed, and that positive messages young females may receive about the use of anabolic steroids from peers, parents, coaches, and professional athletes are effective. In my opinion, the use of anabolic steroids by professional athletes contributes to the belief among some young females that anabolic steroids are not harmful. I believe that reducing the use of anabolic steroids by professional athletes will have a positive influence on children and adolescents.

Comprehensive anabolic steroid educational interventions should begin before high school. Parents, teachers and youth coaches need to be aware of anabolic steroid prevalence rates in young females, and should be cognizant of children's attitudes about these drugs. In addition, young females need to be provided with healthier alternatives to anabolic steroids. A well-balanced nutrition plan combined with a fitness program that includes strength exercise is a healthy alternative to harmful behaviors (4, 5). In our youth physical activity programs, our motto is, "It's not what you take, it's what you do that counts."

Conclusion

It appears that the use of anabolic steroids has trickled down to young females. Health care providers (e.g., pediatricians, school nurses, athletic trainers) as well as teachers, youth coaches and school administrators need to be part of comprehensive steroid education interventions that are science-based and promote public and media awareness. While additional research is needed, multi-dimensional school-based approaches have proven to reduce factors that encourage anabolic steroid use (3, 7).

Thank you for your attention.

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